



GOBIERNO DE CHILE  
SUBSECRETARÍA DE PESCA

# POPULATION STRUCTURE OF THE JACK MACKEREL, *T. MURPHYI*, IN THE SOUTH PACIFIC OCEAN: PROPOSAL FOR DISCUSSION FOR A REGIONAL JOINT RESEARCH.

Draft for discussion in the SWG during the  
3rd International Meeting.

Reñaca, Chile.

April, 2007

# Background

- Origin of the project idea
- General objective

To determine the stock structure of *T. murphyi* to inform future fisheries management

- Specific objectives
  - to determine methods for separating stocks
  - to define the stock structure of *T. murphyi*
  - to define the discrete stocks boundaries
  - To determine mixing rates among relevant stocks

# Methodological approach

## ■ Integration of different methods in a multi-methodological approach

“state of the art”

## ■ Identified techniques

- Genetic tags
- Microchemistry of the otoliths
- Parasites
- Morphometry (body, otoliths)
- Life history patterns

# Important implications

It is a necessary condition careful standardization procedures for sampling and analysis. Specific techniques for stock differentiation needs to be agreed upon the same as the statistical analysis.

The point is that the results obtained by different labs have to be comparable and reproducible

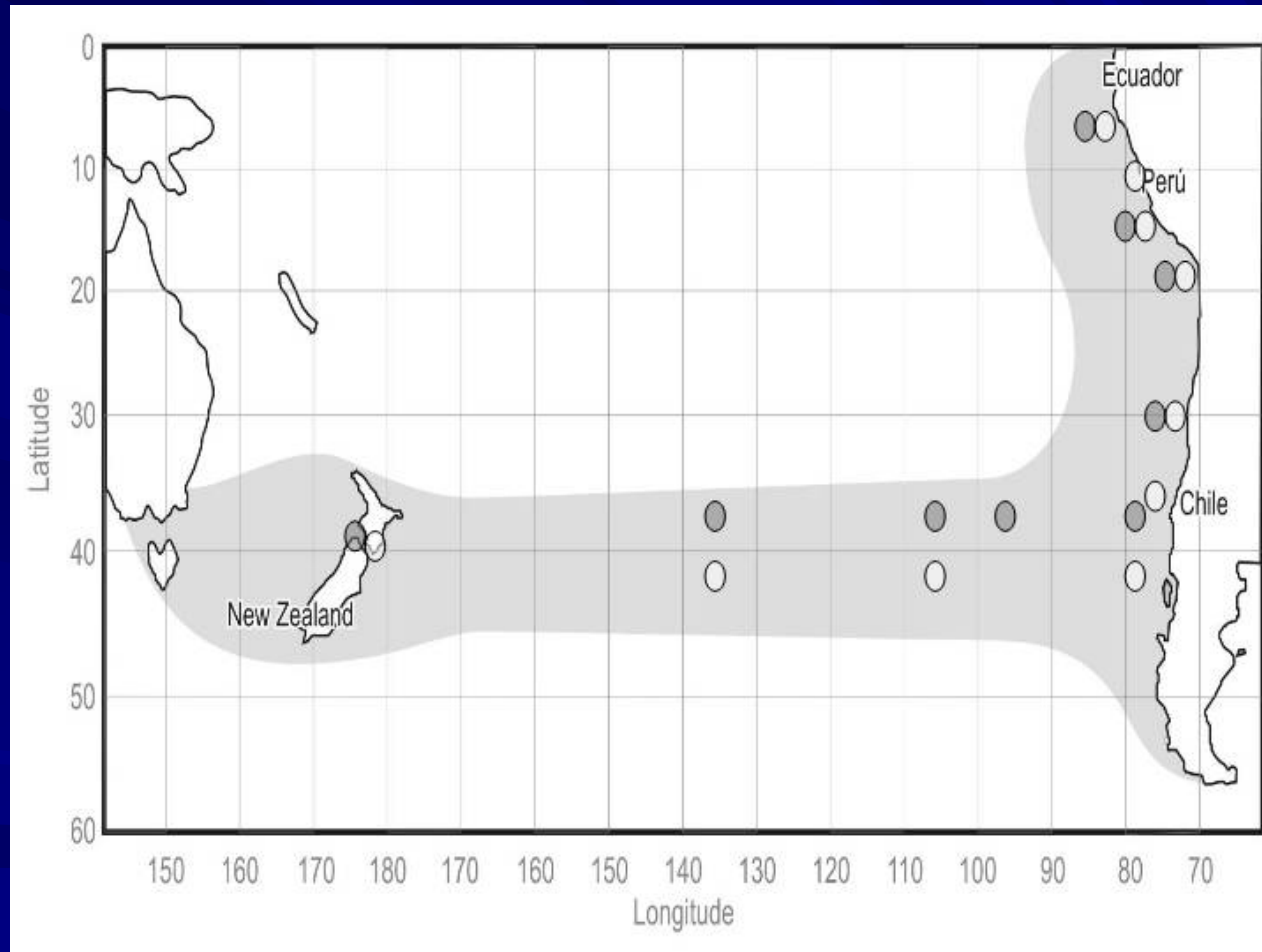
# General sampling scheme

- Samples taken throughout the JM distribution

“Previous studies had either been limited on spatial and temporal scales, or limited in terms of sample size – any future project would need to include a comprehensive wide area sampling design that ensures sample sizes are adequate”

- Seasonal sampling
- Two years sampling program is recommended to learn about the stability of the markers

# General sampling scheme: example



# Potential Techniques

## ■ Applied in Chile on JM

- Genetic markers (**expanded distribution**)
- Life history patterns
- Parasites
- Morphometry

## ■ Others with potential utility

- Microchemistry of otoliths
- Biochemical techniques